# HARMONY GROVE VILLAGE SOUTH

# APPENDIX R

# MINERAL RESOURCES EVALUATION

for the

# DRAFT FINAL ENVIRONMENTAL IMPACT REPORT

PDS2015-GPA-15-002 PDS2015-SP-15-002 PDS-REZ-15-003 PDS2018-TM-5626

PDS2015-MUP-15-008

Log No.: PDS2015-ER-15-08-006

May 2018

Prepared for:
County of San Diego
Planning & Development Services
5510 Overland Avenue, Suite 310
San Diego, California 92123

# MINERAL RESOURCES EVALUATION

# HARMONY GROVE VILLAGE SOUTH SAN DIEGO COUNTY, CALIFORNIA



GEOTECHNICAL ENVIRONMENTAL MATERIALS PREPARED FOR

RCS-HARMONY PARTNERS, LLC MANHATTAN BEACH, CALIFORNIA

OCTOBER 29, 2015 PROJECT NO. 07465-32-03





GEOTECHNICAL III ENVIRONMENTAL II MATERIALS

Project No. 07465-32-03 October 29, 2015

RCS-Harmony Partners, LLC 321 12th Street, Suite 200 Manhattan Beach, California 90266

Attention:

Ms. Kathryn Murrel

Subject:

MINERAL RESOURCES EVALUATION HARMONY GROVE VILLAGE SOUTH

SAN DIEGO COUNTY, CALIFORNIA

Dear Ms. Murrel:

In accordance with your request, we have performed an evaluation of mineral resource potential for the Harmony Grove Village South project located in the west central area of San Diego County, California (see Vicinity Map, Figure 1). The property consists of approximately 112 acres of undeveloped land located south of Harmony Grove Road and east of Country Club Drive.

#### PURPOSE AND SCOPE OF THE EVALUATION

The purpose of the evaluation was to assess the potential for economically viable deposits of minerals; particularly, sand and gravel. In order to assess the sand and gravel resources at the project, we reviewed the soil and geologic descriptions presented in our report titled *Update Geotechncial Report, Harmony Grove Village South, San Diego County, California*, dated February 3, 2015 (Project No. 07465-32-03).

#### **FINDINGS**

#### Site Description

The site topography varies from a broad relatively gentle valley to moderately steep slopes. Surface drainage is primarily to the north, where it flows into Escondido Creek. Vegetation consists of grasses and shrubs. Several unpaved roads traverse the property along with one paved road that bisects the property from east to west in the central portion of the site. The paved road and another unpaved road provide access to existing residences located east of the property.

The site is underlain, in part, by Quaternary alluvium/colluvium and is designated as Mineral Resource Zone MRZ-3 on the map titled Revised Mineral Land Classification Aggregate Resources Only Western San Diego County Production-Consumption Region, Rancho Santa Fe Quadrangle, CDMG Open-File Report 96-04, 1996.

#### Geologic Setting and Conditions

The subject project is located within the Peninsular Ranges Geomorphic Province. The region is characterized by northwest-trending structural blocks and intervening fault zones. The rock types in the Peninsular Ranges include igneous intrusive rocks associated with the Cretaceous-age Southern California Batholith, intruded into older metamorphic units in western and central San Diego County.

Site geology generally consists of Quaternary alluvial/colluvial soils overlying highly weathered, Cretaceous age, granitic rock. Alluvial deposits generally consists of loose to medium dense, silty sands with varying amounts of gravel and cobble. The estimated thickness of the alluvium/colluvium is approximately 19 feet.

Cretaceous-age Escondido Creek Granodiorite (granitic rock) was encountered throughout the project. The rock materials exhibited a variable weathering pattern ranging from completely weathered, decomposed granite to outcrops of fresh, extremely strong, hard rock. The majority of the air-track borings revealed rippable conditions based on generally accepted drill-penetration-rate criteria. The soils derived from the decomposed granitic rock generally consist of low-expansive, silty, medium- to coarse-grained sands.

Groundwater or seepage was encountered in two of the exploratory trenches (T4 and T10) at the time of the referenced study. Seasonal variations should be expected, particularly immediately following seasons of above-average rainfall. In general, the groundwater or seepage was encountered in the surficial deposits or at the contact with the underlying bedrock.

#### Soil Survey

Information concerning the soil conditions at and in proximity to the subject site was obtained from a review of the United States Department of Agriculture (USDA), National Resources Conservation Service's Web Soil Survey (<a href="http://websoilsurvey.nrcs.usda.gov/app/">http://websoilsurvey.nrcs.usda.gov/app/</a>). Information available on Web

Soil Survey indicates that surficial onsite soils belong to several series including the Escondido, Wyman, and Los Posas Series. These soils are described as very fine sandy loam to loam.

#### Industrial Mineral Resources

To assess aggregate production and use in the region we reviewed Aggregate Sustainability in California, Fifty-Year Aggregate Demand Compared to Permitted Aggregate Resources, Map Sheet 52 (updated 2012) by the California Geological Survey (CGS) available online at: <a href="http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/MS 52 2012.pdf">http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/MS 52 2012.pdf</a>. This map provides estimates of aggregate demand versus permitted resources for various regions throughout California. According to the map, the estimated 50-year demand for aggregate in the Western San Diego County region is 1,014 million tons, and the permitted aggregate resources are estimated at 167 million tons. The life of the permitted reserves is estimated at 10 years or less.

We also reviewed Mines and Mineral Resources of San Diego County California, County Report 3, California Division of Mines and Geology, dated 1963 and the USGS Mineral Resource Data System (<a href="http://mrdata.usgs.gov/mineral-resources/mrds-us.html">http://mrdata.usgs.gov/mineral-resources/mrds-us.html</a>) and DMG Open-File Report 96-04 Update of Mineral Land Classification: Aggregate Materials in the Western San Diego County Production-Consumption Region for information regarding former and current mining locations in the vicinity of the project. The nearest aggregate mine is the "Harmony Grove Quarries," a Portland Cement Concrete (PCC) grade aggregate mining operation in granitic rock approximately ½-mile north of the site. The quarries were mined by Ashland Granite Corporation and Harmony Rock Product (H. G. Fenton Material Company) until 1994. The remaining reserves are below the threshold value of \$5,000,000 (1978-dollars). Several other quarries were active directly north of the site (CDMG County Report 3) from 1923 through the 1950's and beyond.

To evaluate the industrial mineral resources of the subject property we analyzed logs from auger and air-percussion borings, and exploratory trench logs (Appendix A) to estimate the volume and quality of potential resources. An isopach map showing the estimated thickness of the alluvium/colluvium with boring locations and general site geology is provided as Figure 2 (map pocket). The volume of the Quaternary-age alluvium/colluvium is estimated to be 407,000 cubic yards or approximately 715,000 tons.

A review of the trench logs indicates the alluvium/colluvium is primarily comprised of silty sand to sandy clay. Based on our experience, it is our opinion that these soils would not meet the minimum requirements for commercially viable sand products such as Sand Equivalent 30 (SE-30). With respect to the potential for aggregate resources, the air-percussion borings performed on site indicate that the granodioritic rock that underlies the alluvium/colluvium is deeply weathered to depths of at least 40 to 60 feet below the ground surface and would not be viable for aggregate production.

#### CONCLUSIONS

Based on our analysis of the boring log data it is our opinion that the site is not a resource for PCCgrade aggregate. It may have a potential for producing SE-30 sand; however, conservatively assuming that all alluvial/colluvial deposits at the site are SE-30 grade, given the current retail price for that type material there is not a high enough volume of material to make open-pit mining economically viable (i.e. the value of the reserves are estimated to be less than \$12,500,000 in 1998 equivalent dollars).

#### LIMITATIONS

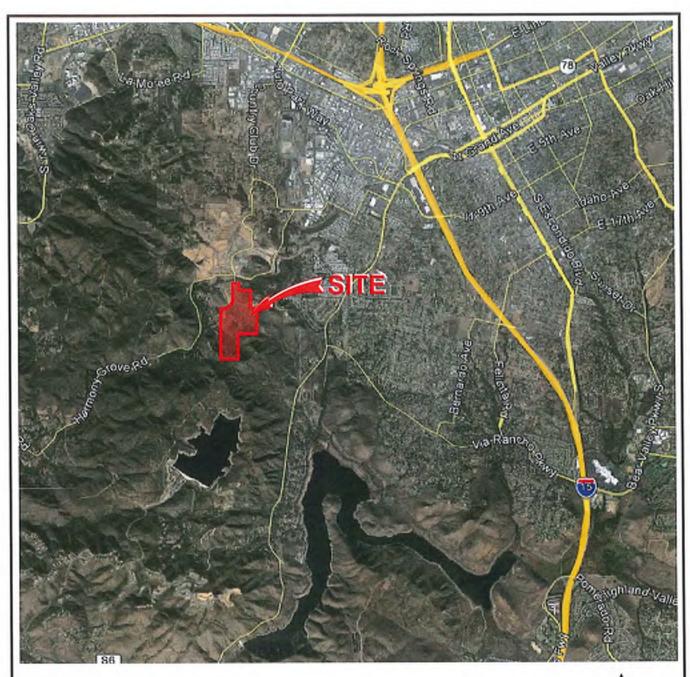
Our professional services were performed, our findings obtained, and our conclusions prepared in accordance with generally accepted geological principles and practices used in this area at this time. No warranty is given, either express or implied.

Should you have any questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Garry W. Cannon Emilio Alvarado David B. Evans CEG 2201 RCE 66915 CEG 1860 RCE 56468 DAVID B. GWC:EA:DBE:dmc **EVANS** NO. 2201 CERTIFIED NGINEERING NO. 1860 No. 66915 CERTIFIED (2) Addressee ENGINEERING



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# VICINITY MAP

# GEOCON



GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS 6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974 PHONE 858 558-6900 - FAX 858 558-6159

EA/RA

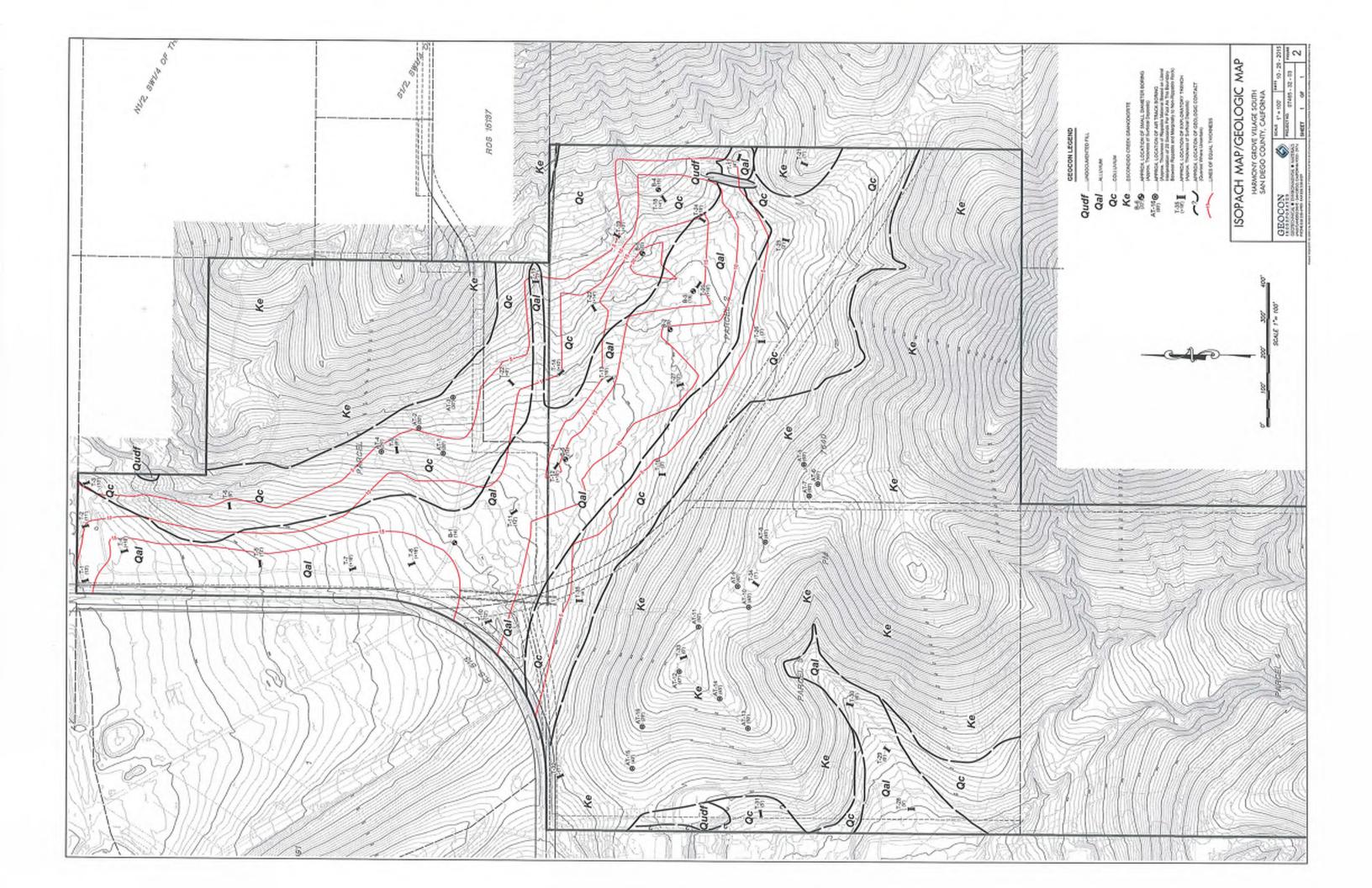
DSK/GTYPD

HARMONY GROVE VILLAGE SOUTH SAN DIEGO COUNTY, CALIFORNIA

DATE 10 - 29 - 2015

PROJECT NO. 07465 - 32 - 03

FIG. 1



# APPENDIX A

### APPENDIX A

# **BORING AND TRENCH LOGS**

FOR

MINERAL RESOURCES EVALUATION HARMONY GROVE VILLAGE SOUTH SAN DIEGO COUNTY, CALIFORNIA

PROJECT NO. 07465-32-03

EPTH IN FEET	SAMPLE NO.	ПТНОГОВУ	GROUNDWATER	SOIL CLASS (USCS)	BORING B 1           ELEV. (MSL.)         620'         DATE COMPLETED         04-08-2005           EQUIPMENT         SMALL DIAMETER (CME)	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0 -			П		MATERIAL DESCRIPTION			
2 - 4 - 6 - 8 - 10 -	B1-1			SM	ALLUVIUM Loose to medium dense, moist, dark brown, Silty SAND, with trace clay  -No recovery in sample  -No recovery in sample	10		
14 -			·					
14		+ +			GRANITIC ROCK Highly weathered, dark gray, moderately weak GRANITIC ROCK			
	B1-3				BORING TERMINATED AT 15 FEET	58/9*		

Figure A-36, Log of Boring B 1, Page 1 of 1

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SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STMBOLS	■ DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	гиногоем	GROUNDWATER	SOIL CLASS (USCS)	BORING B         2           ELEV. (MSL.)         660°         DATE COMPLETED         04-08-2005           EQUIPMENT         SMALL DIAMETER (CME)	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0 -		341			MATERIAL DESCRIPTION  ALLUVIUM  Loose to medium dense, moist, reddish brown, Silty SAND, with trace clay			
2 - 4 - 6	B2-1			SM	-Gravel present	32	125.2	13.5
8 -	B2-2				GRANITIC ROCK Completely weathered, dark gray, moderately weak GRANITIC ROCK BORING TERMINATED AT 10 FEET	73/10*		

Figure A-37, Log of Boring B 2, Page 1 of 1

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SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
SAMPLE STMBOLS	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	WATER TABLE OR SEEPAGE

DEPTH IN FEET	SAMPLE NO.	гиногоех	GROUNDWATER	SOIL CLASS (USCS)	BORING B 3           ELEV. (MSL.)         665'         DATE COMPLETED         04-08-2005           EQUIPMENT         SMALL DIAMETER (CME)	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -			П		MATERIAL DESCRIPTION			
- 2 - - 2 - - 4 - - 6 - - 8 -	B3-1				ALLUVIUM Loose to medium dense, moist, reddish brown, Silty SAND, with trace clay  -Gravel present below	36	117.3	15.4
- 10 - - 12 - 	B3-2			SM	-Becomes dense with more clay	56	107.7	21.3
- 14 -  - 16 -	В3-3				-Becomes very dense	- - 68 -	124.9	13.9
- 18 -	B3-4	7.1	H		GRANITIC ROCK	50/5*		
					Moderately weathered, dark gray, moderately strong GRANITIC ROCK BORING TERMINATED AT 19 FEET			

Figure A-38, Log of Boring B 3, Page 1 of 1

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SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
OAWIFEE OTWIDOLO	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE

SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING B 4  ELEV. (MSL.) 702' DATE COMPLETED 04-08-2005  EQUIPMENT SMALL DIAMETER (CME)	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
		П		MATERIAL DESCRIPTION			
		3		COLLUVIUM Very dense, damp, gray, Silty, fine to coarse SAND, with gravel	-		
		5			-		
B4-1	141	9			50/4"	N/A	10.3
B4-2		h h	SM		-		
B4-3		p.			50/5*	N/A	4.1
	000				-		
		5			-		
B4-4	+ +	+		GRANITIC ROCK Highly weathered, dark brown, moderately weak GRANITIC ROCK	50/4"		
		-		BORING TERMINATED AT 17 FEET	+		
	B4-2	B4-1 B4-2 B4-4 + + +	B4-1 B4-3 B4-4 + + + + + + + + + + + + + + + + + +	B4-1 B4-2 SM	B4-1 B4-2 B4-3 B4-4 B4-4 B4-4 B4-4 B4-4 B4-4 B4-4	B4-1  B4-2  B4-3  B4-4  B4-4	B4-1  B4-2  B4-3  B4-4  B4-4

Figure A-39, Log of Boring B 4, Page 1 of 1

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SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STMBOLS		CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	гиногоех	GROUNDWATER	SOIL CLASS (USCS)	BORING B 5           ELEV. (MSL.)         680°         DATE COMPLETED         04-08-2005           EQUIPMENT         SMALL DIAMETER (CME)	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0 -		d 1.1	П		MATERIAL DESCRIPTION COLLUVIUM			
2 -		90	3		Very dense, damp, brownish gray, Silty, fine to coarse SAND, with gravel	-		
4 -			oi			-		
6 -	B5-1		?			50/5"	117.3	12.
8 -			2			-		
10 -	B5-2	9 9		SM		83/10.5*	121.4	8.0
12 -		14			-Becomes brown			
16 -	B5-3	9 4				- 82/11* -	130.6	8.8
18 -		9	3			-		
20 -	B5-4 B5-5	914	2		-Becomes dense -Becomes medium dense	51 24	107.8	6.6
22 -	B5-6	+ +	-		GRANITIC ROCK Moderately weathered, gray, moderately strong GRANITIC ROCK BORING TERMINATED AT 22 FEET	31/6"		

Figure A-40, Log of Boring B 5, Page 1 of 1

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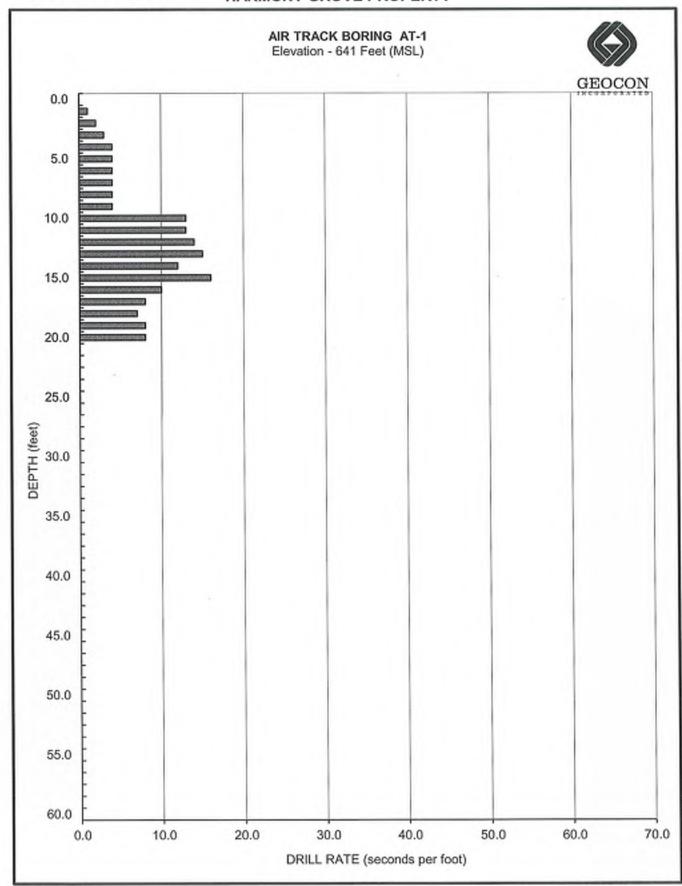
SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STMBOLS	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

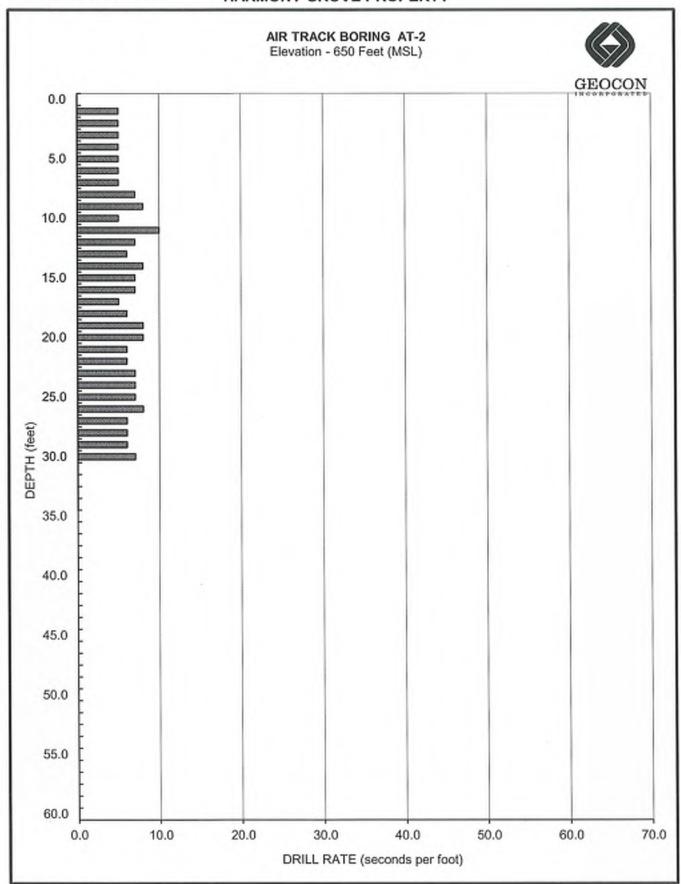
DEPTH IN FEET	SAMPLE NO.	ПТНОСОБУ	GROUNDWATER	SOIL CLASS (USCS)	BORING B 6           ELEV. (MSL.)         640°         DATE COMPLETED         04-08-2005           EQUIPMENT         SMALL DIAMETER (CME)	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -					MATERIAL DESCRIPTION			
- 0 - - 2 - - 4 - - 6 - - 8 - - 10 - - 12 -	B6-1			SM	ALLUVIUM Very loose to medium dense, moist, dark brown, Silty SAND, with trace clay  -Becomes mottled reddish brown and gray	- 4 		
 - 14 -		+ + + +			GRANITIC ROCK Highly weathered, gray-green, moderately weak GRANITIC ROCK	-		
	B6-3	- + -			BORING TERMINATED AT 15 FEET	50/6"		

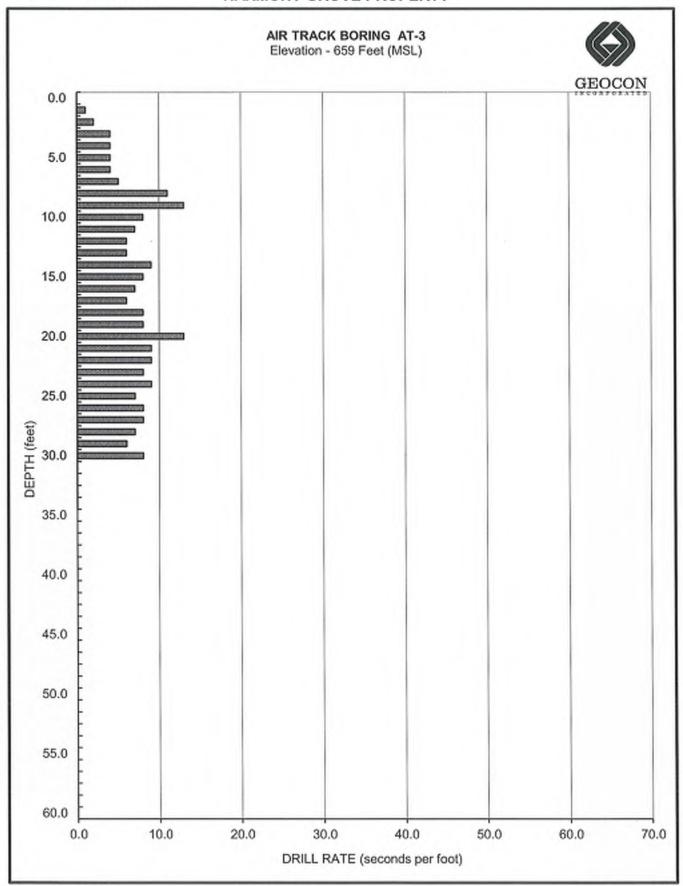
Figure A-41, Log of Boring B 6, Page 1 of 1

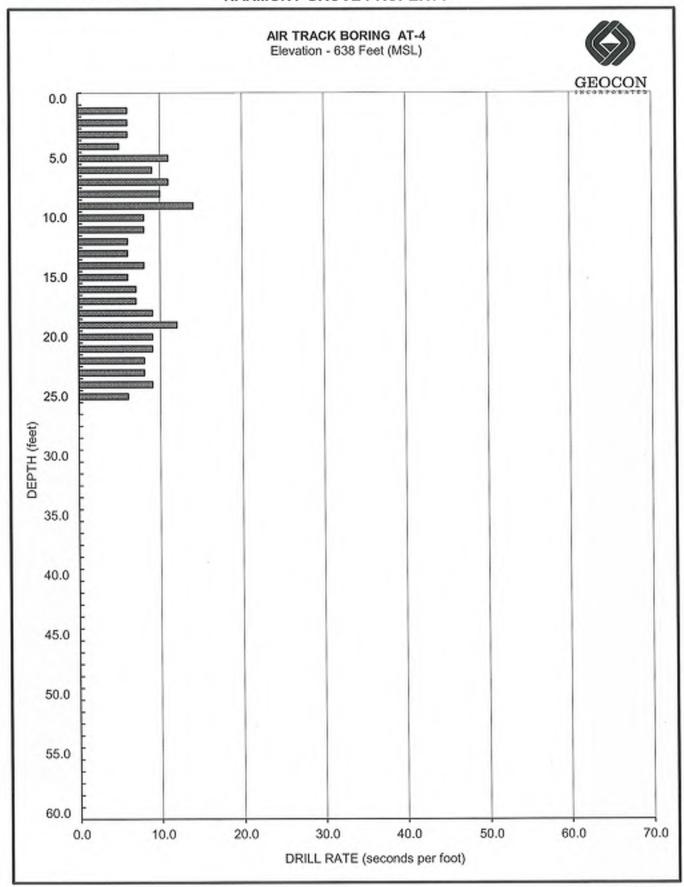
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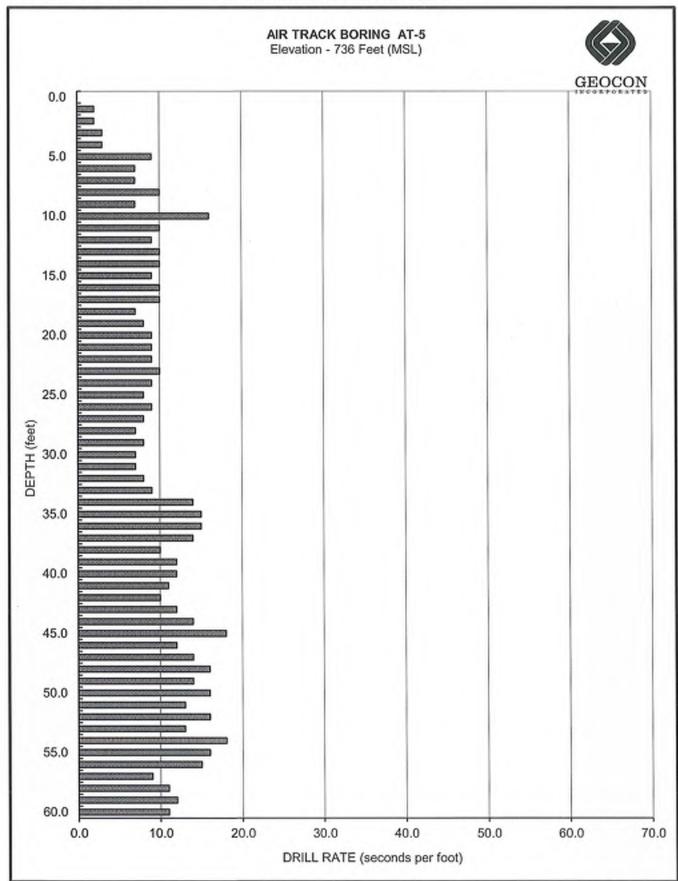
SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STIMBOLS	₩ DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

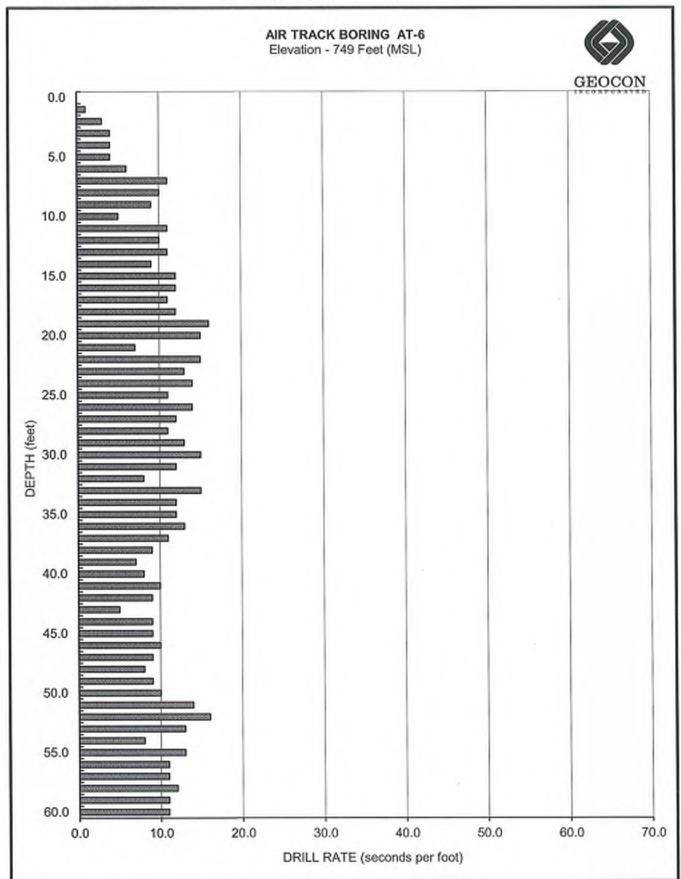


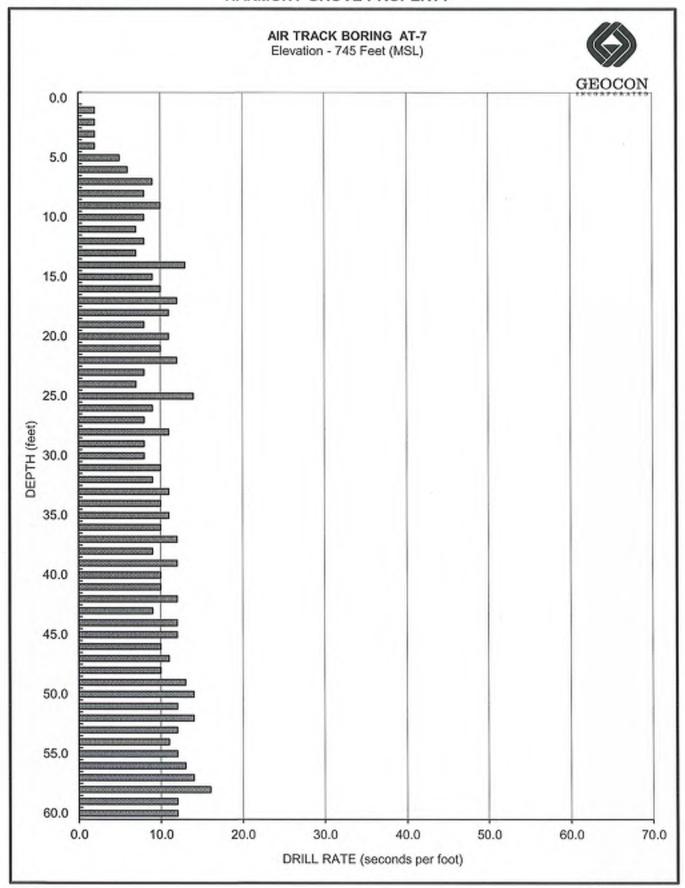


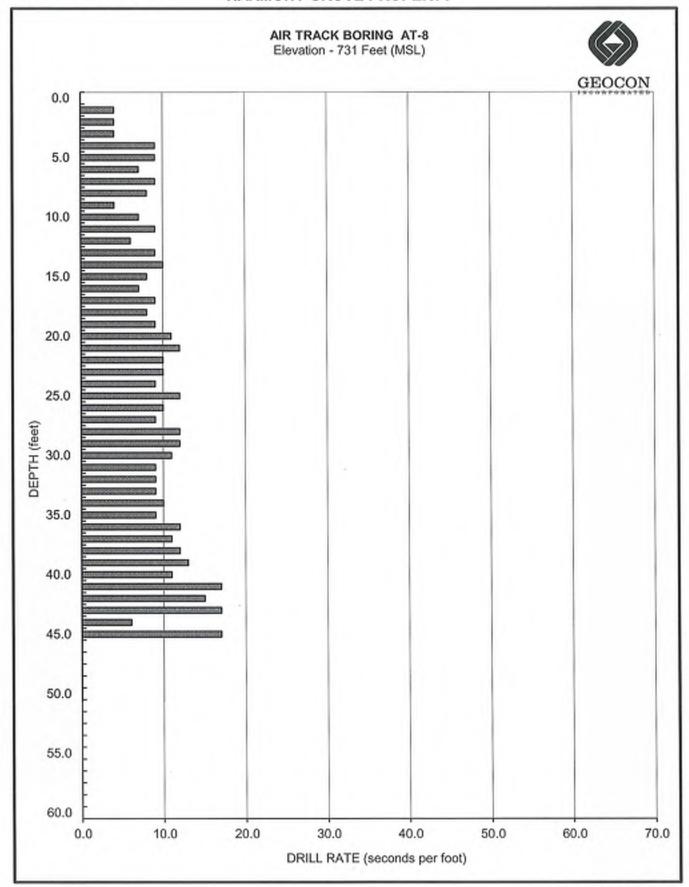


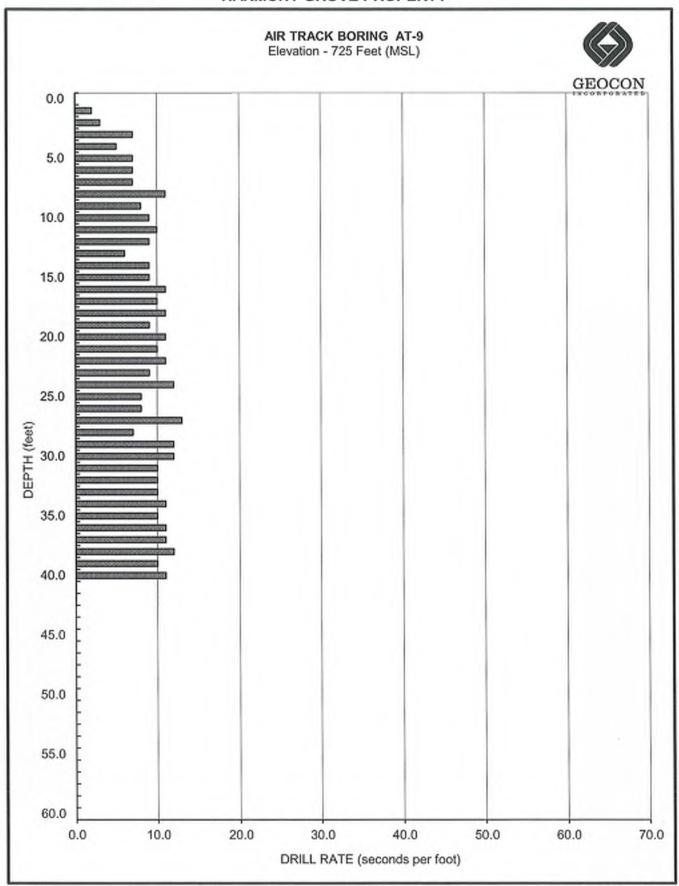


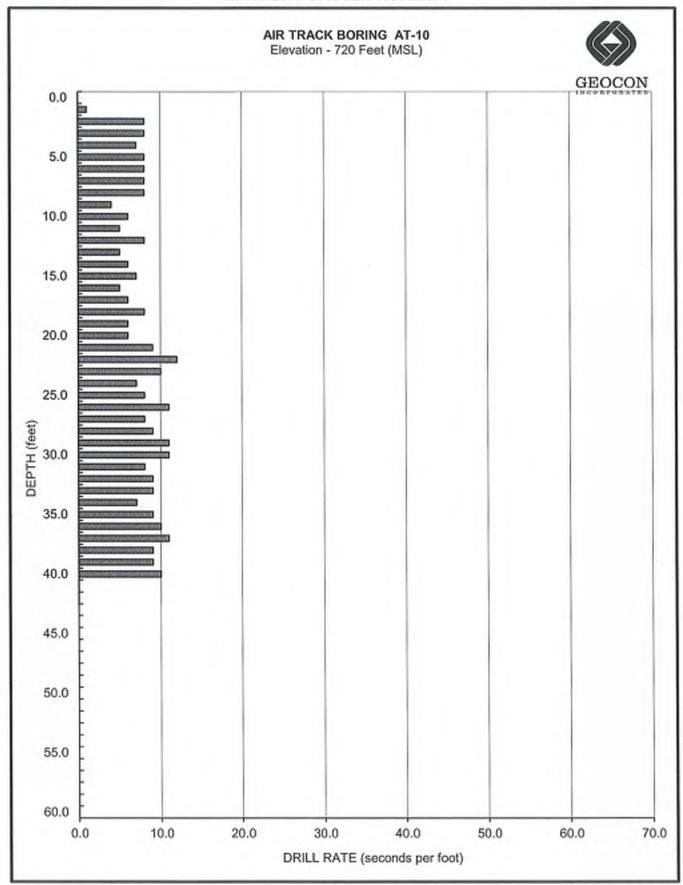


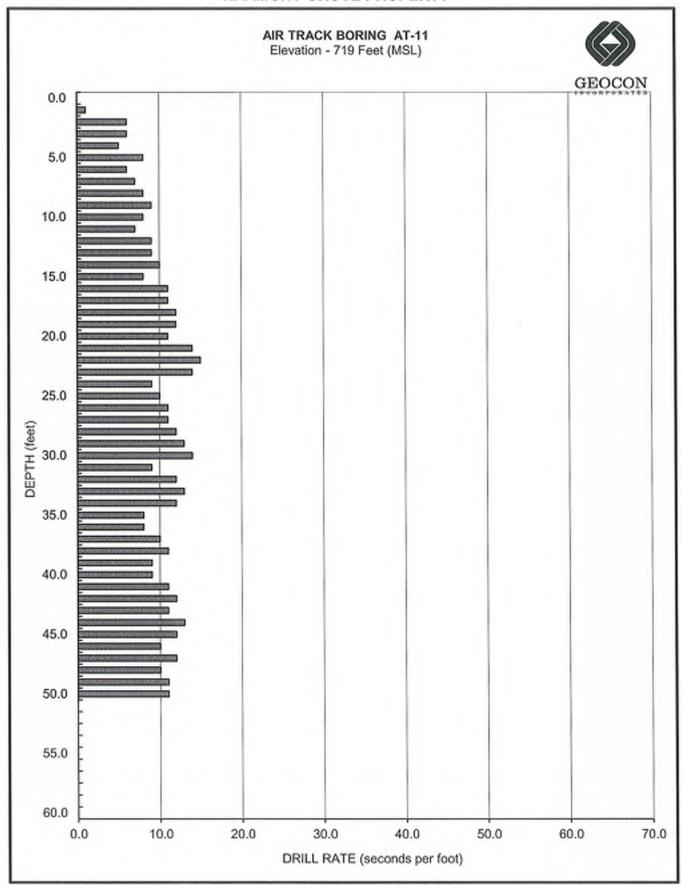


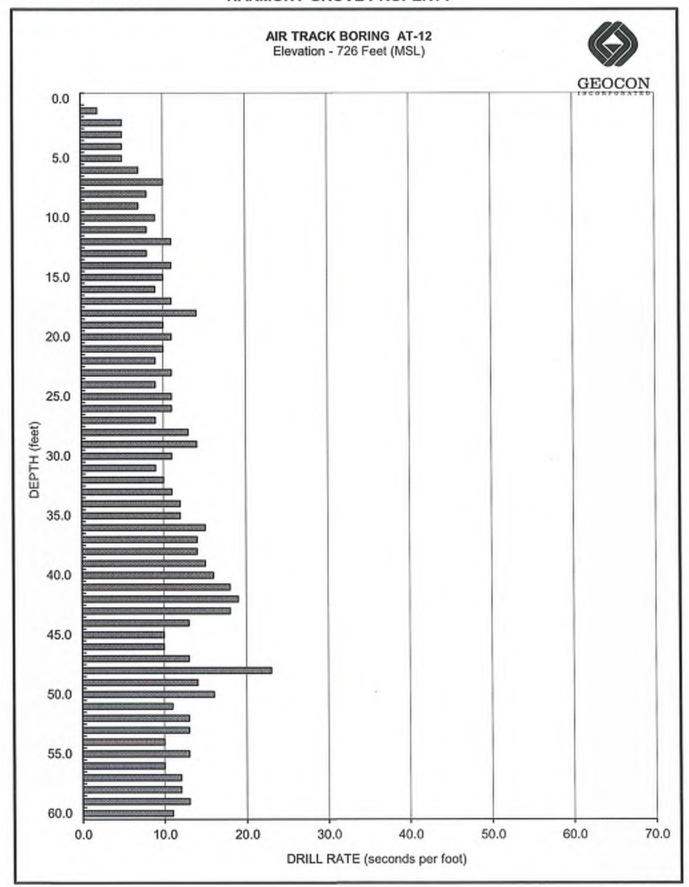


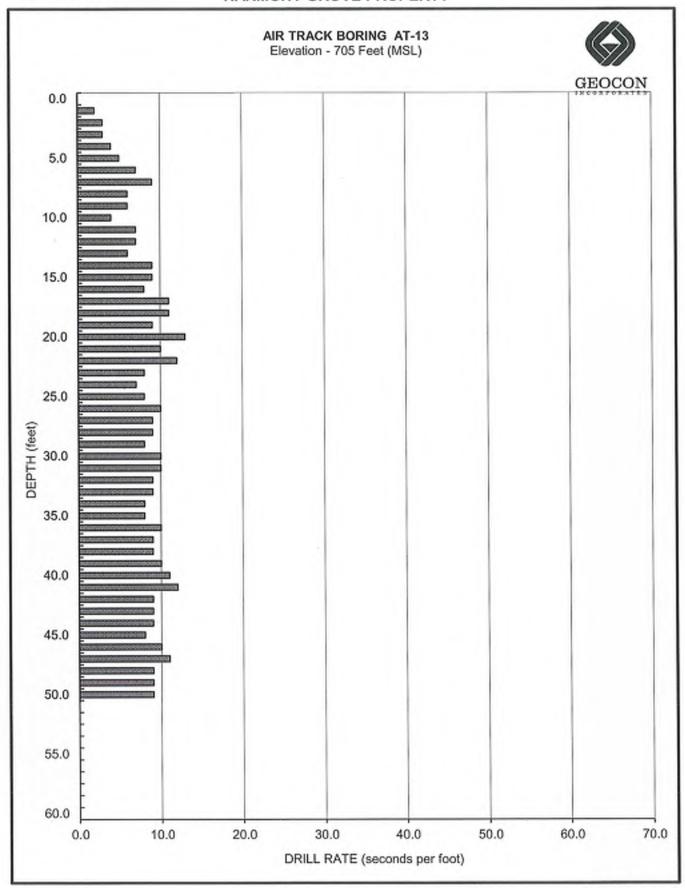


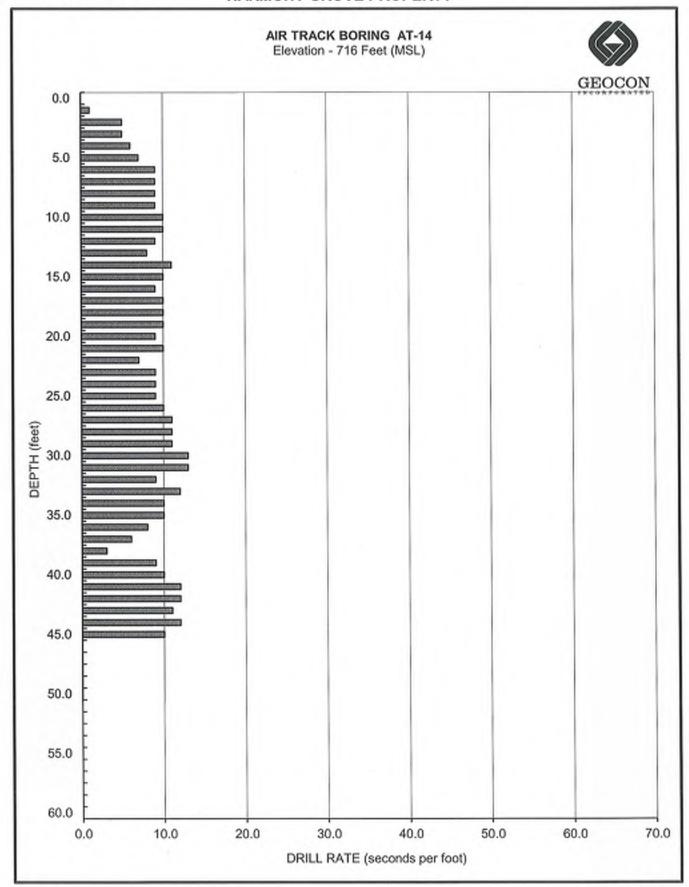


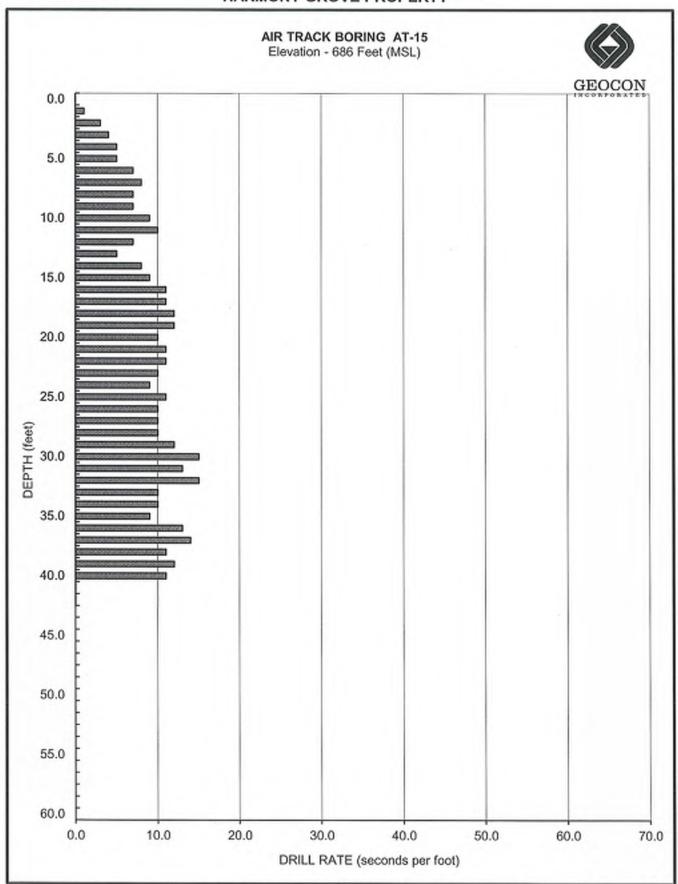


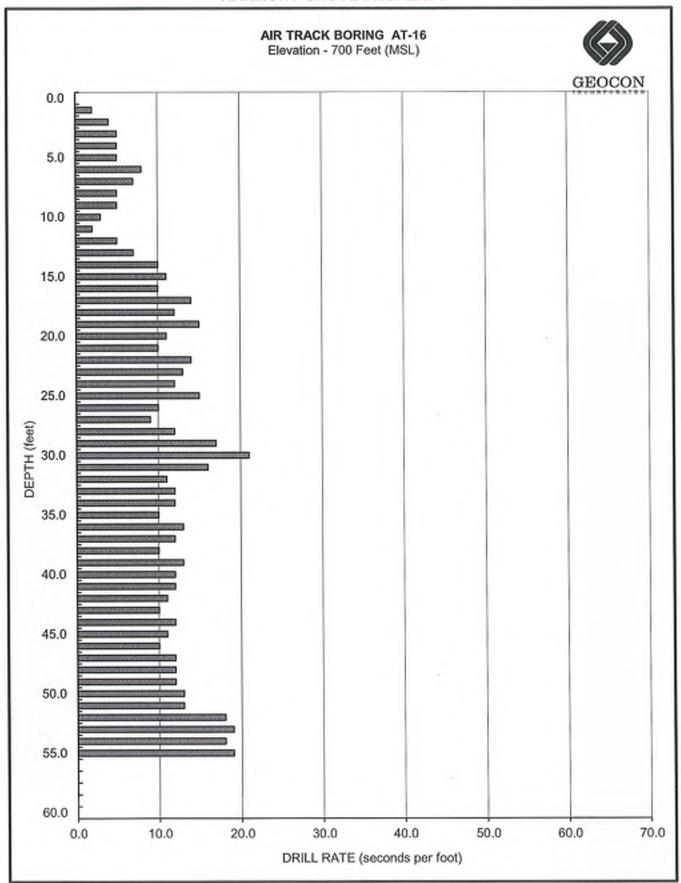












DEPTH IN PEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 1           ELEV. (MSL.)         570°         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0	T1-1			SM	ALLUVIUM Loose, moist, dark brown, fine to medium SAND, with some clay  -Becomes brown at 12 feet  GRANITIC ROCK Fresh, dark gray, very strong GRANITIC ROCK REFUSAL AT 13 FEET			

Figure A-1, Log of Trench T 1, Page 1 of 1

SAMPLE SYMBOLS

STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

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... SAMPLING UNSUCCESSFUL

S ... DISTURBED OR BAG SAMPLE

DEPTH IN FEET	SAMPLE NO.	ПТНОГОБУ	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 2           ELEV. (MSL.)         570°         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -					MATERIAL DESCRIPTION			
- 0 2 4				SM	ALLUVIUM Loose, moist, dark brown, Silty, fine to medium SAND, with clay  -Becomes brown at 10 feet  GRANITIC ROCK Fresh, dark gray, strong GRANITIC ROCK REFUSAL AT 12 FEET			

Figure A-2, Log of Trench T 2, Page 1 of 1

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SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STWIBOLS	∴ DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	гиногоех	GROUNDWATER	SOL CLASS (USCS)	TRENCH T 3           ELEV. (MSL.)         574*         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -			Ħ		MATERIAL DESCRIPTION			
 - 2 - 	T3-1			CL	COLLUVIUM Firm to stiff, moist, brown, Silty/Sandy CLAY	-		
 - 6 -				SM	Medium dense, damp to moist, reddish brown, Silty SAND, with some clay	-		
- 8 -	T3-2			1000	-Becomes dense and damp below 8 feet  -Weathered granitic rock present in matrix (very difficult to trench)			
- 10 -		++	H		GRANITIC ROCK			
					Fresh, grav, very strong GRANITIC ROCK REFUSAL AT 10 FEET			

Figure A-3, Log of Trench T 3, Page 1 of 1

SAMPLE SYMBOLS

STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

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... SAMPLING UNSUCCESSFUL

S ... DISTURBED OR BAG SAMPLE

DEPTH IN FEET	SAMPLE NO.	UTHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 4           ELEV. (MSL.)         572'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)	
0 -			П		MATERIAL DESCRIPTION				
2 -				SM	ALLUVIUM Loose, moist, dark brown, Silty, fine to medium SAND	-			
4 -				CL	Stiff to very stiff, moist, reddish brown, Silty/Sandy CLAY, with trace angular gravel				
8 10 12 14 16	T4-1				SM	Medium dense to dense, moist, reddish brown, Silty, fine to medium SAND, with some clay  -Moderate seepage at 16 feet -Saturated below 16 feet -Refusal on rock, possible granitic contact at 17.5 feet		112.4	17.9
					REFUSAL AT 17.5 FEET				

Figure A-4,		
Log of Trench T	4, Page 1	of 1

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SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STMBOLS	□ DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	V WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	гиногоем	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 5           ELEV. (MSL.)         590'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0		111	Ħ		MATERIAL DESCRIPTION ALLUVIUM			
2 -					Loose, moist, dark brown, Silty SAND, with some clay	-		
6 -				SM	-Becomes brown below 7 feet	-		÷
10 -	T5-1	90	3	SM	Medium dense, moist, brown, Silty, fine to coarse SAND, with some gravel  -Becomes grayish-brown below 11 feet			
12 -		+ + +			GRANITIC ROCK Highly weathered, gray-brown, weak GRANITIC ROCK -Becomes moderately weak below 14 feet	-		
	T5-2	+ +			TRENCH TERMINATED AT 14.5 FEET			

## Figure A-5, Log of Trench T 5, Page 1 of 1

807	ARE	-32-01	200
- 200	400	20-01	AMP.

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
OAMI EE OTMBOEO	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	WATER TABLE OR SEEPAGE	

IECT	NIO.	07465-32-0	<b>~4</b>

DEPTH IN FRET	SAMPLE NO.	ПТНОГОСУ	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 6           ELEV. (MSL.)         607'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -			П		MATERIAL DESCRIPTION			
- 0 - - 2 -				SM	COLLUVIUM Loose, moist, dark brown, Silty SAND			
- 4 -				CL	Stiff, moist, reddish brown, Sandy CLAY	-		
- 6 -		+ +	Н		GRANITIC ROCK			
		+	Н		Highly weathered, gray, weak to moderately weak GRANITIC ROCK TRENCH TERMINATED AT 7 FEET			

Figure A-6, Log of Trench T 6, Page 1 of 1

w	100	c	324	4	0	n
U.	40	9	340	0 1	,,,,	r

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STMBOLS	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

DEPTH SAMPLE FEET NO.	гиногоех	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 7           ELEV. (MSL.)         604*         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
		П		MATERIAL DESCRIPTION			
0 - 2 - 4 - 6 - 8 - 10 - 12 - 14 - 16 16 16 - 17			SM	-Becomes medium dense and brown below 15 feet  -Scratched fresh granitic rock with teeth at 17.5 feet (probable contact?)  TRENCH TERMINATED AT 17.5 FEET (Limit of backhoe)			

Figure A-7,		
Log of Trench T	7, Page 1 of 1	

47.7	100	22	24	.GPJ
1074	100	100	401	A38~0

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL DISTURBED OR BAG SAMPLE	STANDARD PENETRATION TEST CHUNK SAMPLE	DRIVE SAMPLE (UNDISTURBED)  WATER TABLE OR SEEPAGE	
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DEPTH IN FEET	SAMPLE NO.	ПТНОГОСУ	GROUNDWATER	SOL CLASS (USCS)	TRENCH T 8           ELEV. (MSL.)         614'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0 -			П		MATERIAL DESCRIPTION			
2 - 4 - 6 - 8 - 10 - 12 -	T8-1			SM	ALLUVIUM Loose, moist, dark brown, Silty SAND, with trace clay  -Becomes mottled gray and brown with increase in clay content below 11 feet  -Some 4-inch angular gravel present below 15.5 feet			
16 -					TRENCH TERMINATED AT 18 FEET	-		

Figure A-8, Log of Trench T 8, Page 1 of 1

07465-32-01/0	
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SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
		CHUNK SAWPLE	💆 WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	ГШНОГОВУ	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 9           ELEV. (MSL.)         641'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			П		MATERIAL DESCRIPTION			
- 0 - - 2 - - 4 - - 6 - - 8 -		***************************************		SM/SC	COLLUVIUM Loose, moist, reddish brown, Silty/Clayey SAND  -Becomes medium dense to dense below 4 feet  -Becomes dense and damp below 6 feet -Difficult trenching below 7 feet  GRANITIC ROCK Highly weathered, gray, moderately weak GRANITIC ROCK TRENCH TERMINATED AT 8.5 FEET	-		
					TRENCH TERMINATED AT 6.5 FEET			

Figure A-9, Log of Trench T 9, Page 1 of 1

0.74	20 E.J	12.0	1 (20)

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
SAMPLE STIMBOLS	₩ DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	💆 WATER TABLE OR SEEPAGE

DEPTH IN FEET	SAMPLE NO.	ГШНОГОВУ	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 10           ELEV. (MSL.)         618'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0 -			П		MATERIAL DESCRIPTION			
2 -			Ā		ALLUVIUM Loose, moist to wet, dark brown, Silty SAND, with some clay  -Minor seepage at 4 feet	-		
6 -				SM	-Becomes medium dense, mottled brown and gray below 6 feet	-		
10 -	T10-1				-Becomes dense at 11 feet	-	110.0	12.5
12 -		+ +	F		GRANITIC ROCK Highly weathered, gray, moderately weak GRANITIC ROCK TRENCH TERMINATED AT 13 FEET			

## Figure A-10, Log of Trench T 10, Page 1 of 1

0746	E 50	O.E.	OD
90.493	5-30	·Oπ.	or.

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STIMBOLS		CHUNK SAMPLE	V WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	гиногову	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 11           ELEV. (MSL.)         631*         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			H		MATERIAL DESCRIPTION			
- 0 2 4 6 8 10 12 14 -				SM	-Becomes medium dense and mottled brown and gray below 8 feet  GRANITIC ROCK Highly weathered, gray, moderately weak GRANITIC ROCK  TRENCH TERMINATED AT 14 FEET			

Figure A-11, Log of Trench T 11, Page 1 of 1

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100.4	œ	-32	oı.	AUG-1

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STMBOLS		CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	гиногоду	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 12           ELEV. (MSL.)         638'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 2 4 6 8 10 12 14 -				SM	MATERIAL DESCRIPTION  ALLUVIUM  Loose, moist, dark brown, Silty SAND, with some clay  -Becomes medium dense and mottled brown and gray below 12 feet			
- 16 -					TRENCH TERMINATED AT 16 FEET			

Figure A-12, Log of Trench T 12, Page 1 of 1

0.7	41	25.7	15.	nı.	GP.
.,,	~~	MAT N	me.	<b>10</b> Fr	(MORE)

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
SAMPLE STMBOLS	∴ DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE

DEPTH IN FBET	SAMPLE NO.	ПТНОГОБУ	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 13           ELEV. (MSL.)         649°         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			П		MATERIAL DESCRIPTION			
0 - 2 - 4 - 6 - 6 - 10 - 12 - 14 14				SM	ALLUVIUM Loose, moist, dark brown, Silty SAND  -Becomes mottled brown and gray below 15 feet			
16 -		+ 4	F	,	GRANITIC ROCK  Moderately to slightly weathered, gray, very strong GRANITIC ROCK			
					TRENCH TERMINATED AT 16.5 FEET			

Figure A-13, Log of Trench T 13, Page 1 of 1

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or e	FG.	ĸ.	30	-cn	44	ю.

CAMPIE CVAIDOLC	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE SYMBOLS	■ DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 14           ELEV. (MSL.)         662'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			Ħ		MATERIAL DESCRIPTION			
- 0 - - 2 - - 4 - - 6 - - 8 - - 10 -	T14-1			SM/SC	COLLUVIUM Loose, moist, dark brown, Silty/Clayey SAND  -Becomes dense and brown below 7 feet  -Very difficult trenching below 9 feet  PRACTICAL REFUSAL AT 10 FEET		125.6	9.1

Figure A-14, Log of Trench T 14, Page 1 of 1

07-	MAX.	8-3	2-0	٩.	GI.	þ

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
SAMIFEE STWIBOLS	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE

DEPTH IN FEET	SAMPLE NO.	ПТНОГОВУ	GROUNDWATER	SOL CLASS (USCS)	TRENCH T 15           ELEV. (MSL.)         658'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
- 0 - - 2 - - 4 - - 6 -				SM	ALLUVIUM Loose, moist, dark brown, Silty SAND			
		+ +	H		GRANITIC ROCK			
- 8 -		+ +			Highly weathered, brown, moderately weak GRANITIC ROCK	-		
					TRENCH TERMINATED AT 9 FEET			

Figure A-15, Log of Trench T 15, Page 1 of 1

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SAMPLE SYMBOLS	SAMPLING UNBUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
SAMPLE STMBOLS	₩ DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE

PTH N ET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 16           ELEV. (MSL.)         663'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
,					MATERIAL DESCRIPTION			
2 -				SC	COLLUVIUM  Loose, moist to wet, reddish brown, Clayey SAND	-		
, -	T16-1	+ + + + + +			GRANITIC ROCK Highly weathered, tan, moderately weak to moderately strong GRANITIC ROCK			
3 -		+ + + + - + + +			-Slight seepage at 6 feet	-		
3 +		+	Н		TRENCH TERMINATED AT 8 FEET	-		
							·	

Figure	A-16,					
Log of	Trench	Т	16,	Page	1	of 1

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074	EC:	-32	≪n.	anan,

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
OAMI LE STINDOES	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	гиногоех	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 17           ELEV. (MSL.)         689*         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			П		MATERIAL DESCRIPTION			
- 0 -  - 2 -				SP	ALLUVIUM Very loose, damp, brown, Silty SAND -Minor caving below 2 feet	-		
- 4 -		+ + +			GRANITIC ROCK Highly weathered, tan, weak GRANITIC ROCK	-		
- 6 -		1	H		TRENCH TERMINATED AT 6 FEET			

Figure A-17,					
Log of Trench	Т	17,	Page	1	of 1

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01400-02-01/01	*

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

PROJECT	NO C	7/4	85-32-04	ı
PROJECT	WU. U	// net	00-02-0	ı

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 18           ELEV. (MSL.)         698*         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -		,,,	Ħ		MATERIAL DESCRIPTION			
- 2 -	T18-1			SC	COLLUVIUM  Dense, moist, mottled brown and gray, Clayey SAND, with trace gravel	-		
		111	$\mathbb{H}$		-Very dense below 3 feet PRACTICAL REFUSAL AT 3.5 FEET	-		

Figure A-18, Log of Trench T 18, Page 1 of 1

		15.0		

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMI EE STWIBOES		CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

PROJEC	OM T	07466	1.32-01
FROJEC	II IYO	UITO	1-02-01

			_					$\overline{}$
DEPTH IN FEET	SAMPLE NO.	гиногоск	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 19           ELEV. (MSL.)         691'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			Н		MATERIAL DESCRIPTION			
- 0 -  - 2 -		H		SM	COLLUVIUM  Dense to very dense, damp, mottled gray and brown, Silty SAND, with some gravel  -Very difficult trenching at 2 feet	-		
					PRACTICAL REFUSAL AT 2.5 FEET			

Figure A-19, Log of Trench T 19, Page 1 of 1

0.7	400	-	100	LGP.	н
we	<b>TEO</b>	malu.	(Hur	LAMP:	ч

OTTEN E COMPOSIO	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE SYMBOLS	∴ DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	🕎 WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 20           ELEV. (MSL.)         667'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0 -			Ħ		MATERIAL DESCRIPTION			
2 - 4 - 6 - 8 - 10 - 12 - 14				SM	ALLUVIUM Loose, moist, reddish brown, Silty SAND, with some clay  -Ocassional 6-inch rock present below 11 feet			
16		417	Ħ		TRENCH TERMINATED AT 16 FEET			

Figure A-20, Log of Trench T 20, Page 1 of 1

07.4		

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
OAMI EE OTMOOES	□ DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE

PRO.	JECT	NO:	07465-32-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 21           ELEV. (MSL.)         725'         DATE COMPLETED         03-17-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			Н		MATERIAL DESCRIPTION			
· 0 - · - · 2 -		+++++++++++++++++++++++++++++++++++++++		_ SM	TOPSOIL Loose, damp, brown, Silty SAND GRANITIC ROCK Highly weathered, gray, moderately weak GRANITIC ROCK	-		
- 4 -		+ + +			-Becomes moderately strong below 5 feet	-		
- 6 -		1	t		TRENCH TERMINATED AT 6 FEET			

Figure A-21, Log of Trench T 21, Page 1 of 1

- 1	124	es.	32	24	a	ı

CAMPI E CVAROU C	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
SAMPLE SYMBOLS	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	¥ WATER TABLE OR SEEPAGE

DEPTH IN FEET	SAMPLE NO.	ПТНОГОБУ	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 22           ELEV. (MSL.)         656'         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			П		MATERIAL DESCRIPTION			
0 - 2 - 4 - 6 - 8 - 8				SM	COLLUVIUM Loose, moist, reddish brown, Silty, fine to medium SAND, with trace clay  -Occasional 4-inch angular gravel present below 6 feet -Becomes medium dense below 7 feet -36-inch fresh, gray, granitic rock present at 8 feet (appears to be within matrix)  REFUSAL AT 8.5 FEET			

Figure A-22, Log of Trench T 22, Page 1 of 1

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904	63	-	-01	. 1.00

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
SAMIFEE STMIDGES	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE

DEPTH IN FEET	SAMPLE NO.	гиногову	GROUNDWATER	SOL CLASS (USCS)	TRENCH T 23           ELEV. (MSL.)         669*         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
	T23-1		GROUNE			RESIS (BLOW)	122.9	9.2

Figure A-23, Log of Trench T 23, Page 1 of 1

	$\neg$
DRIVE SAMPLE (UNDISTURBED)	- 1

07465-32-01.GPJ

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STWIBOLS		CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	ПТНОГОВУ	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 24           ELEV. (MSL.)         682'         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -					MATERIAL DESCRIPTION			
 - 2 - 				SM/SC	ALLUVIUM Loose, moist, dark brown, Silty/Clayey SAND	-		
 - 6 -						-		
- 8 - - 8 - - 10 -				SM	Loose to medium dense, moist, reddish brown, Silty, fine to medium SAND, with clay	-		
- 12 -  - 14 -				SM	-Becomes damp and light brown at 15 feet	-		
- 16 -		++			GRANITIC ROCK Highly weathered, tan, weak GRANITIC ROCK TRENCH TERMINATED AT 16.5 FEET			

Figure A-24, Log of Trench T 24, Page 1 of 1

074	65	-32	-01	,GP	Ł

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
SAWIFLE STWIBOLS	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 25           ELEV. (MSL.)         688'         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			H		MATERIAL DESCRIPTION			
- 0 - 				SM	COLLUVIUM Loose, moist, dark brown, Silty SAND, with some clay	-		
- 2 - 		+ + +	H		GRANITIC ROCK Highly weathered to moderately weathered, tan, weak to moderately weak GRANITIC ROCK	-		
- 4					TRENCH TERMINATED AT 4 FEET			

Figure	A-25,						
Log of	Trench	Т	25,	Page	1	of	1

074	65-3	2-0	1.0	ΡJ

SAMPLE SYMBOLS	SAMPUNG UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STMBOLS		CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

IIIOOLOI	140. 0740	0.01.0						
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 26           ELEV. (MSL.)         682'         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			Н		MATERIAL DESCRIPTION			
- 0 - - 2 - - 2 -		+++		SM	COLLUVIUM Loose, moist, dark brown, Silty SAND  -Abundant 3 to 4 inch angular gravel present above contact GRANITIC ROCK Highly weathered to moderately weathered, brown, moderately weak to moderately strong GRANITIC ROCK	-		
					TRENCH TERMINATED AT 5 FEET			

Figure A-26, Log of Trench T 26, Page 1 of 1

			77.07
07463	m	eur,	MIN.

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STIMBOLS	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	ПТНОГОБУ	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 27           ELEV. (MSL.)         660'         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			П		MATERIAL DESCRIPTION			
0 - 2 - 4 - 4 - 6 - 8 - 10 - 12 - 12 -	T27-1			SM	ALLUVIUM Loose, moist, reddish brown, Silty SAND, with trace clay  -Becomes medium dense to dense and damp with 1 to 2-inch gravel  -Difficult trenching  GRANTIC ROCK Highly weathered, gray, moderately weak GRANTIC ROCK PRACTICAL REFUSAL AT 12 FEET		116.4	12.5

Figure A-27, Log of Trench T 27, Page 1 of 1

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CAMPLE CYMPOLO	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
SAMPLE SYMBOLS	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 28           ELEV. (MSL.)         620'         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -			П		MATERIAL DESCRIPTION			
- 0 - - 2 - - 4 - - 6 - - 8 - - 10 -	T28-1	**************************************		SM/SC	ALLUVIUM Loose, damp to moist, very dark brown, Silty/Clayey SAND  -Becomes moist, brown, Clayey SAND, with trace gravel at 6 feet  GRANITIC ROCK Highly weathered, gray, weak to moderately weak GRANITIC ROCK TRENCH TERMINATED AT 10 FEET			

Figure A-28, Log of Trench T 28, Page 1 of 1

80	100		32	As	0	D
w	400	-	·oc	-01		m

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
GYMIF EL GTIMBOLO	M DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	WATER TABLE OR SEEPAGE

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 29           ELEV. (MSL.)         634*         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWSIFT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			Ħ		MATERIAL DESCRIPTION			
- 0 - - 2 - - 4 - - 6 - - 8 -		+ +		SM/SC	ALLUYIUM Loose, damp to moist, very dark brown, Silty/Clayey SAND  GRANTIC ROCK Highly weathered, gray, weak to moderately weak GRANITIC ROCK TRENCH TERMINATED AT 9 FEET			

Figure A-29, Log of Trench T 29, Page 1 of 1

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SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STIMBOLS	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 30           ELEV. (MSL.)         649'         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			Ħ		MATERIAL DESCRIPTION			
- 0 - - 2 - - 4 -				SM/SC	ALLUVIUM Loose, moist, dark brown, Silty/Clayey SAND			
			11					
- 6 -		+++			GRANITIC ROCK Highly weathered, gray, weak to moderately weak GRANITIC ROCK	-		
- 8					TRENCH TERMINATED AT 8 FEET			

Figure A-30, Log of Trench T 30, Page 1 of 1

00746			

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE STWIBOLS	□ DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

		0.79 4	AF AA A	٠
PROJECT	NO.	074	65-32-0	1

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 31           ELEV. (MSL.)         652'         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -			Ħ		MATERIAL DESCRIPTION			
 - 2 - 				SM/SC	COLLUVIUM Locse, damp, dark brown, Silty/Clayey SAND	-		
 - 6 -		+ + +			GRANITIC ROCK Highly weathered, gray, weak GRANITIC ROCK	-		
					TRENCH TERMINATED AT 7 FEET			

Figure A-31, Log of Trench T 31, Page 1 of 1

CAMPLE CYMPOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)	
SAMPLE SYMBOLS	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE	

DDD	IFAT	NIC	07465-32-01	
PRU	11-1	PAGE 1	1174895-57-111	

DEPTH IN FEET	SAMPLE NO.	ГШНОГОВУ	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 32           ELEV. (MSL.)         660'         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			H		MATERIAL DESCRIPTION			
- 0 -		4:1	H	SM	TOPSOIL Loose, damp, brown, Silty SAND, with gravel			
- 2 -		+ + + + + +			GRANITIC ROCK Moderately weathered, gray, moderately weak GRANITIC ROCK	-		
- 4 -		+ +	Ц		-Becomes moderately strong below 3.5 feet			
					REFUSAL AT 4 FEET			

Figure A-32,						
Log of Trench	Т	32,	Page	1	of 1	1

0746	15-	32-0	11	GP.	

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	■ STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE

PROJECT	NO.	07465-32-01

INOULO	110, 074	10.00	•					
DEPTH IN FEET	SAMPLE NO.	гиногоех	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 33           ELEV. (MSL.)         726°         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			Н		MATERIAL DESCRIPTION			
- o - 		+ + + + +			GRANITIC ROCK Moderately weathered, gray, moderately strong GRANITIC ROCK	-		
- 2 -		+ +	Ц		REFUSAL AT 2.5 FEET			

Figure A-33, Log of Trench T 33, Page 1 of 1

0746	5-32	-01	GP.

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
SAMPLE STMBOLS		CHUNK SAMPLE	WATER TABLE OR SEEPAGE

DEPTH SAMPLE ST	GROUNDWATER SS 20 808	S FLEV (MSL.) 727' DATE COMPLETED 03-18-2005	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
		MATERIAL DESCRIPTION			
T34-1 8 + + + + + + + + + + + + + + + + + +	1 SX + + + + + + + + + + + + + + + + + + +	TOPSOIL			

Figure A-34, Log of Trench T 34, Page 1 of 1

07	44.5	-	20	44	0	0
0.7	40	0	-30	-01	.50	en.

SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
Orimi EE OTIMBOEO	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	WATER TABLE OR SEEPAGE

DEPTH IN FEET	SAMPLE NO.	гиногосу	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 35           ELEV. (MSL.)         646'         DATE COMPLETED         03-18-2005           EQUIPMENT         JD 555 TRACK HOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -			П		MATERIAL DESCRIPTION			
- 0 -  - 2 -				SM	COLLUVIUM Loose, damp, brown, Silty SAND	-		
- 4 -		+ +	H		GRANITIC ROCK Highly weathered, grayish-brown, moderately weak GRANITIC ROCK			
		+ +			riigiily weathered, grayisii-otowii, moderately weak GRANTIC ROCK			
- 6 -		+ +			-Becomes moderately weathered and moderately strong below 6 feet			
- 8 -		+ +	Ц		REFUSAL AT 8 FEET			

Figure A-35, Log of Trench T 35, Page 1 of 1

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SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
oram de ormodeo	DISTURBED OR BAG SAMPLE	CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE